

CLAIMS
(without amendment)

1-115. (canceled)

116. (previously presented): A method of silencing a gene in cells by post-transcriptional gene silencing (PTGS) which method comprises introducing into said cells a composition that contains short RNA molecules (SRMs),

which SRMs are isolated short sense RNA molecules (SSRMs) and isolated short antisense RNA molecules (SARMs) at the same abundance;

wherein said SARMs are complementary to a region of a target RNA transcribed from a gene which is silenced when said short RNA molecules are present in cells containing said gene and said SSRMs correspond to said target RNA; and

wherein the SSRMs and SARMs consist of 20, 21, 22, 23 or 24 nucleotides,
whereby said gene is silenced.

117. (previously presented): The method of claim 116, wherein the cells are contained in an organism and said introducing comprises administering said SRMs to the organism.

118. (previously presented): The method of claim 116, wherein the SRMs are synthetic.

119. (previously presented): The method of claim 116, wherein the SARMs have a structure complementary to a target mRNA transcribed from a gene endogenous to a plant, a mammal, an avian organism, a reptile, an insect, a protozoan, a nematode, or a virus.

120. (previously presented): A method of silencing a gene in cells of an organism by post-transcriptional gene silencing (PTGS) which method comprises introducing into said cells a composition that contains isolated short antisense RNA molecules (SARMs) and isolated short sense RNA molecules (SSRMs) corresponding to a target RNA transcribed from said gene, the nucleotide sequences of which consist of 20, 21, 22, 23 or 24 nucleotides and wherein said SARMs can base pair with said target RNA.

121. (previously presented): The method of claim 120, wherein said SARMs and SSRMs are present at the same abundance.

122. (previously presented): The method of claim 120, wherein the cells are contained in an organism and said introducing comprises administering said SSRMs and SARMs to the organism.

123. (previously presented): The method of claim 120, wherein the SSRMs and SARMs are synthetic.

124. (previously presented): The method of claim 120, wherein the SARMs have a sequence that can base pair to a target mRNA transcribed from a gene endogenous to a plant, a mammal, an avian organism, a reptile, an insect, a protozoan, and a nematode, or a virus.

125. (previously presented): A method of silencing a gene in cells by post-transcriptional gene silencing (PTGS) which method comprises introducing into said cells a composition that contains at least one vector that, when introduced into said cells, produces short RNA molecules (SRMs),

which SRMs are short sense RNA molecules (SSRMs) and short antisense RNA molecules (SARMs);

wherein said SARMs are complementary to a region of a target RNA transcribed from a gene which is silenced when said short RNA molecules are present in cells containing said gene and said SSRMs correspond to said target RNA; and

wherein the SSRMs and SARMs consist of 20, 21, 22, 23 or 24 nucleotides,

whereby said gene is silenced.

126. (previously presented): The method of claim 125, wherein the cells are contained in an organism and said introducing comprises administering said composition to the organism.

127. (previously presented): The method of claim 125, wherein the SARMs have a structure complementary to a target mRNA transcribed from a gene endogenous to a plant, a mammal, an avian organism, a reptile, an insect, a protozoan, a nematode, or a virus.

128. (previously presented): A method of silencing a gene in cells of an organism by post-transcriptional gene silencing (PTGS) which method comprises introducing into said cells a composition that contains at least one vector that, when introduced into said cells, produces short antisense RNA molecules (SARMs) and short sense RNA molecules (SSRMs) corresponding to a target RNA transcribed from said gene, the nucleotide sequences of which consist of 20, 21, 22, 23 or 24 nucleotides and wherein said SARMs can base pair with said target RNA.

129. (previously presented): The method of claim 128, wherein the cells are contained in an organism and said introducing comprises administering said composition to the organism.

130. (previously presented): The method of claim 128, wherein the SARMs have a sequence that can base pair to a target mRNA transcribed from a gene endogenous to a plant, a mammal, an avian organism, a reptile, an insect, a protozoan, a nematode, or a virus.